

## CLAIMS

1. A pre-polymerized catalyst component for the polymerization of ethylene optionally in mixtures with olefins  $\text{CH}_2=\text{CHR}$ , wherein R is a C1-C12 alkyl group, characterized by comprising a non-stereospecific solid catalyst component, comprising Ti, Mg and a halogen, which is pre-polymerized with an  $\alpha$ -olefin  $\text{CH}_2=\text{CHR}^1$  wherein R is a C1-C8 alkyl group, to such an extent that the amount of the  $\alpha$ -olefin pre-polymer is up to 100g per g of said solid catalyst component.
2. A pre-polymerized catalyst component according to claim 1 in which the amount of the  $\alpha$ -olefin polymer is less than 15 g per g of said solid catalyst component.
3. A pre-polymerized catalyst component according to claim 2 in which the amount of the  $\alpha$ -olefin polymer is from 0.8 to 4 g per g of solid catalyst component.
4. A prepolymerized catalyst component according to claim 1 comprising a titanium compound and a magnesium dihalide.
5. A pre-polymerized catalyst component according to claim 1 in which the magnesium dihalide is magnesium dichloride in active form and the titanium compound is selected from the compounds of formula  $\text{Ti}(\text{OR})_{n-y}\text{X}_y$ , where R is a C1-C20 hydrocarbon group X is halogen, n is the valence of titanium and y is a number between 1 and n.
6. A pre-polymerized catalyst component according to claim 5 in which the titanium compound is selected from the group consisting of  $\text{TiCl}_4$ ,  $\text{TiCl}_3$  and Ti-tetralcoholates or Ti-chloroalcoholates of formula  $\text{Ti}(\text{OR}^{\text{II}})_a\text{Cl}_{n-a}$  where n is the valence of titanium, a is a number comprised between 1 and n, and  $\text{R}^{\text{II}}$  is a C1-C8 alkyl or aryl group.
7. A pre-polymerized catalyst component according to claim 1 in which the solid catalyst component to be pre-polymerized has a surface area, by B.E.T. method, between 20 and 500  $\text{m}^2/\text{g}$ , and a total porosity, by B.E.T. method, higher than 0.2  $\text{cm}^3/\text{g}$ .
8. A pre-polymerized catalyst component according to claim 1 or 6 in which the solid catalyst component to be pre-polymerized has a porosity (Hg method) due to pores with radius up to 10000 Å 0.3 to 1.5  $\text{cm}^3/\text{g}$ .
9. A pre-polymerized catalyst component according to any of the preceding claims in which the solid catalyst component is pre-polymerized with an  $\alpha$ -olefin selected from propylene, butene-1, hexene, 4-methyl-1-pentene, and octene-1.
10. A pre-polymerized catalyst component according to claim 9 in which the  $\alpha$ -olefin is

propylene.

11. A pre-polymerized catalyst component according to any of the preceding claims in which the solid catalyst component to be pre-polymerized is obtained by
  - (a) reacting a compound  $MgCl_2 \cdot mROH$ , wherein  $0.3 \leq m \leq 1.7$  and R is an alkyl, cycloalkyl or aryl radical having 1-12 carbon atoms, with a titanium compound of the formula  $Ti(OR^{II})_bX_{y-b}$ , in which b is comprised between 0 and 0.5, y is the valence of titanium, X is halogen and  $R^{II}$  has the meaning given above;
  - (b) reacting the product obtained from (a) with an Al-alkyl compound and,
  - (c) reacting the product obtained from (b) with a titanium compound of the formula  $Ti(OR^{II})_nX_{y-n}$ , in which n, y, X and  $R^{II}$  have the meanings explained above.
12. A pre-polymerized catalyst component according to any of the claims 1-10 in which the solid catalyst component to be pre-polymerized is obtained by:
  - (a) the thermal dealcoholation of the adducts  $MgCl_2 \cdot pEtOH$ , where p is a number between 2 to 3.5, until forming adducts in which the alcohol content is reduced to values lower than 2 and preferably comprised between 1.5 and 0.3 mols per mol of magnesium dihalide,
  - (b) the treatment of said thermally dealcoholated adduct with chemical reagents capable of reacting with the OH groups of the alcohol and of further dealcoholating the adduct until the content is reduced to values which are generally lower than 0.5 mols and
  - (c) the reaction of said chemically dealcoholated adduct with a Ti compound of formula  $Ti(OR^{II})_{n-y}X_y$ , where X,  $R^{II}$ , n, and y have the same meanings described above.
13. A pre-polymerized catalyst component according to any of the preceding claims in which said pre-polymerization is carried out using amounts of alkyl-Al compound such as to have an Al/Ti molar ratio from 0.001 to 50, preferably from 0.01 to 10.
14. A pre-polymerized catalyst component according to claim 13 in which the Al-alkyl compound is a trialkyl aluminum compound.
15. A pre-polymerized catalyst component according to claim 14 in which the trialkyl aluminum compound is selected from triethylaluminum, triisobutylaluminum, tri-n-butylaluminum, tri-n-hexylaluminum, tri-n-octylaluminum.

16. A process for the (co)polymerization of ethylene characterized in that it is carried out in the presence of a catalyst comprising (A) a pre-polymerized catalyst component according to any of the preceding claims; and (B) an Al-alkyl compound.
17. A process according to claim 16 in which ethylene is copolymerized with olefins  $\text{CH}_2=\text{CHR}$ , wherein R is a C1-C12 alkyl group.
18. A process according to claim 17 in which the olefin is selected from the group consisting of propylene, butene-1, hexene-1 octene-1 and 4-methyl-1-pentene.

Al-alkyl  
A<sub>4</sub> C<sub>1</sub>-C<sub>12</sub>